

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(pursuant to NAC 445A.236)

Permittee Name: Lake Las Vegas Resort
1605 Lake Las Vegas Parkway
Henderson, NV 89011

Permit Number: NV0022691

Outfall Location: Lake Las Vegas Dam
1605 Lake Las Vegas Parkway
Henderson, Clark County Nevada
Latitude: 36° 07' 09" N, Longitude: 114° 54' 41" W
Township 21S, Range 63E, Section 14

Description of Discharge: The Permittee has applied for renewal of National Pollutant Discharge Elimination System (NPDES) Permit #NV0022691 for discharges of water from Lake Las Vegas to the Lower Las Vegas Wash (LLVW) for the purposes of water quality management. During dry weather, discharge normally occurs from a 30" diameter lake drain valve located at monitoring point LLV-1 at a depth of 75 ft. below surface. Water quality discharges are permitted from the period of November 1st through February 28th of each year when the lake water column is de-stratified and aerobic throughout, i.e., dissolved oxygen content of 5.0 mg/L or higher. Discharges are allowed up to 2,500 AF/yr for water quality management purposes. When discharging, the lake drain valve is maintained in the 20% open position, which corresponds to a flow of 100 cubic feet per second (cfs). The lake discharge is routed through a concrete energy dissipation structure and then merges with the LLVW flow underneath the Lake Las Vegas Dam.

The Division of Environmental Protection does not regulate discharges from this lake for the purposes of dam safety or flood control. These discharges are regulated under a State Engineer's dam permit. The NPDES permit requires that the cumulative flow volume from dam safety and flood control discharges be reported to the Division on an annual basis in the 4th Quarter DMR Report. Flood control discharges occur through the lake's three spillways and the 30" lake drain valve.

General: Lake Las Vegas is located between Lake Las Vegas Parkway and North Shore Road, which is accessed via Lake Mead Drive (State Route 564) in Henderson, Clark County, Nevada. The resort is a 2,600-acre property incorporating residential, resort and commercial development. Lake Las Vegas is a 320-acre man-made impoundment filled with Lake Mead water supplied by the Basic Management, Inc. (BMI) pipeline. The lake is approximately two miles in length, one mile in width with an average depth of 33 ft. The lake holds 10,000 acre-feet (AF). Water rights of up to 7,000 AF/yr from Lake Mead can be used to fill the lake and irrigate the resort's landscaping and four planned golf courses. The resort's sewer and water utilities are provided by the City of Henderson. The earthen embankment dam, which forms Lake Las Vegas, was completed in 1992 and is 4,800 ft. in length and 150 ft. high. Twin 84" diameter reinforced concrete pipelines divert the entire flow of the Lower Las Vegas Wash (LLVW) under the lake. The total LLVW bypass length under the lake is 9,450 ft. The bypass conduits discharge underneath the dam at a point located approximately one mile upstream of Las Vegas Bay (i.e., Lake Mead). The bypass conduits

are designed to carry up to 1,760 cubic feet per second (cfs). Last year, dry-weather flow in the LLVW averaged 250 cfs (15% of pipeline capacity). The LLVW conveys the Las Vegas Valley's tertiary-treated municipal wastewater effluent, stormwater, urban runoff and groundwater seepage into Lake Mead's Las Vegas Bay.

Lake Las Vegas is a private recreational lake, which residents and guests use for swimming, fishing (catch & release of stocked fish) and boating (electric, oar or sail-powered vessels). The lake also serves as a storage reservoir for irrigation of the resort's landscaping and golf courses. Total dissolved solids (TDS, i.e., salinity) concentrate in the lake due to evaporative losses of over 6½ ft. per year and recharge from high salinity groundwater (e.g., as high as 5,000-6,000 mg/L of TDS). The inlet water supply from Lake Mead presently averages 600-700 mg/L of TDS. TDS levels in Lake Las Vegas concentrate approximately up to 4X prior to discharge for either water quality management or flood control practices. Generally, the lake's TDS level concentrates to about 2,500 mg/L before the lake is diluted with BMI pipeline water. Since 1992, a cumulative volume of 2,700 AF has been released from this lake for water quality management purposes.

The lake must also comply with dam safety requirements of the State Engineer's Office. The dam is outfitted with a toe-drain collection point, which collects dam seepage to protect the structural integrity of the embankment fill material. At present, the toe-drain discharges 100 gpm of lake seepage to the LLVW. The dam must also be protected from high stormwater runoff events, which can exceed the carrying capacity of the bypass conduits. During peak storm events, surcharge from the bypass conduits enters the lake via an overflow structure. To maintain freeboard requirements during peak storm events, lake water levels are normally lowered through the lake drain valve and a spillway maintained with an air-adjusted rubber bladder. Altogether, the dam has three spillways. Most notably, flooding events in the Las Vegas Valley during July 1999 released an approximate cumulative volume of 4,900 AF from the lake to maintain required freeboard levels. Storm overflows into the lake dilute the TDS content, and these occurrences minimize the need for planned discharges for water quality management purposes, as the Valley's stormwater runoff is less saline than the lake's water. Last year there were no discharges from this lake other than through the toe-drain discharge point.

Receiving Water Characteristics: The receiving water for lake discharges is the Lower Las Vegas Wash. Water quality standards for the Lower Las Vegas Wash are specified in NAC 445A.201. The stated beneficial uses of the LLVW are irrigation, livestock watering, non-contact recreation, freshwater marsh maintenance, and propagation of wildlife and aquatic wildlife, excluding fish.

Flow: The permit allows for an annual discharge of up to 2,500 AF/yr during non-storm flow events. Flood control and toe-drain discharges are not limited, but the cumulative flow shall be reported annually in the facility's 4th Quarter Discharge Monitoring Report.

Rationale for Permit Requirements: Monitoring requirements for the parameters specified in Table 1 have been established to ensure that discharges from this lake for water quality management purposes do not degrade beneficial uses of the LLVW.

Proposed Effluent Limitations and Special Conditions:**Table 1: Discharge Limitations for Water Quality Management (Outfall 001)**

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Daily Maximum	Sample Type
Cumulative Flow for Water Quality Management, Acre-Feet/yr	2,500 (period from November 1 st through March 30 th)		Continuous	Totalized Flow Recorders
pH, S.U.	Within range 6.5 – 9.0		Prior to Discharge then Weekly ¹	Composite ²
Dissolved Oxygen, mg/L	5.0		Prior to Discharge then Weekly ¹	Composite ²
Total Inorganic Nitrogen (as N), mg/L	17		Prior to Discharge then Weekly ¹	Composite ²
Total Suspended Solids, mg/L	135		Prior to Discharge then Weekly ¹	Composite ²
Total Dissolved Solids, mg/L	3,000		Prior to Discharge then Weekly ¹	Composite ²
Fecal Coliform, c.f.u. or mpn/100 ml	200	400	Prior to Discharge then Weekly ¹	Composite ²

1. For discharge events greater than one week in duration, samples shall be collected on a weekly basis.
2. A composite sample profile at monitoring point LLV-1 shall consist of (1) sample collected one meter below lake surface, (1) sample collected at mid-water column depth, and (1) sample collected one meter above lake bottom.

Schedule of Compliance: The Permittee shall submit the following item to the attention of:

Mr. Nadir Sous, Supervisor
Nevada Division of Environmental Protection
Bureau of Water Pollution Control
1771 E. Flamingo Rd.
Suite 121-A
Las Vegas, NV 89119

- Within ninety (90) days of the permit issuance date, the Permittee shall submit a copy of an Operations & Maintenance (O&M) Manual, which addresses discharges of water from Lake Las Vegas for the purposes of water quality management and sampling procedures. The O&M Manual shall also include a section discussing discharges for dam safety and flood control management. The O&M Manual shall be prepared in accordance with the Division's WTS-2 Guidance: *Minimum Information Required for an Operations and Maintenance Manual*.

Procedures for Public Comment: The Notice of the Division's intent to issue (renew) an NPDES discharge permit authorizing releases from Lake Las Vegas for water quality management purposes, subject to the conditions contained within the permit is being sent to the **Henderson Home News** and **Las Vegas Review-Journal** for publication. The notice is being mailed to interested persons on

our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **August 22, 2003 by 5:00 P.M.** A copy of the public notice and fact sheet can also be downloaded from the Division's website at the following address: <http://ndep.nv.gov/admin/public.htm>

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to issue (renew) the proposed NPDES discharge permit for a period of five (5) years.

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Bureau of Water Pollution Control

Date: July 18, 2003

Saved to: LakeLasVegas_factsheet

LAKE LAS VEGAS PHOTOS (5/14/03):



Diversion (barscreen) of Las Vegas Wash



Roadway on top of dam



Lake Las Vegas (mid-channel)



(1) of (3) Spillways (aka "rubber dam")



Las Vegas Wash discharging underneath the dam



Toe Drain